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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,747	10/18/2005	Teruyuki Kobayashi	1204.45527X00	5938
20457 7590 06/12/2007 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			EXAMINER BHAT, NARAYAN KAMESHWAR	
			ART UNIT 1634	PAPER NUMBER
			NOTIFICATION DATE 06/12/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/553,747	Applicant(s) KOBAYASHI ET AL.	
	Examiner Narayan K. Bhat	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 8-16 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 17 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :10/18/2005, 5/19/2006 & 1.03.2007.

DETAILED ACTION

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed on October 18, 2005. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Election/Restrictions

2. Applicant's election without traverse of group I invention in the reply filed on April 26, 2007 is acknowledged.
3. Claims 1-18 are pending in the application.
4. Claims 8-16 and 18 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on April 26, 2007.
5. Claims 1-7 and 17 are under prosecution.

Claim Objections

6. Claim 17 is objected to because of the following informalities: The claim recites "according claim 1 to." and this appears to be an editing error. Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-7 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Wadu-Mesthrige et al (Biophysical Journal, 2001, 80, pg. 1891-1899, herein after referred as Wadu).

Regarding claim 1, Wadu teaches a molecular detection method that include imaging, that is visualizing protein molecules immobilized on to gold film, i.e., substrate via electrostatic immobilization (See Fig. 1 for schematic illustration of immobilization of proteins and imaging; Fig. 3 B and C for the AFM image of rabbit IgG; pg. 1894, column 1, paragraph 2 for details of the imaging) and covalent immobilization (See Fig. 1 for schematic illustration of immobilization of proteins and imaging; Fig. 4 B and E for the AFM image of rabbit IgG; pg. 1895, column 2, paragraph 2, lines 3-4 for covalent immobilization). Proteins immobilized on the gold film of Wadu are the chain molecules of the instant claim.

Wadu also teaches imaging, i.e., probing of the immobilized proteins in solution (pgs. 1892 & 1896; column 2, paragraph 2, lines 4-6; column 1, paragraph 1) with atomic force microscope (pg. 1892, column 1, paragraph 4), that is a scanning probe microscope (see instant specification, paragraph 0075). Wadu further teaches the

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specific binding of mouse anti rabbit IgG to the immobilized protein (Fig. 4C and E, fig. 4 legend, line 5; pg. 1896, column 1) thus detecting immobilized protein and there by identifying the immobilized protein, that is rabbit IgG. Teachings of Wadu thus anticipate claim 1.

Regarding claims 2 and 3, Wadu teaches that the rabbit IgG protein molecule, immobilized on the substrate is in standing up orientation (pg. 1894, column 1, paragraph 2, line10; See also Fig. 3C for schematics of possible orientations of IgG including stand up orientation), which is an uprightly disposed single strand molecule and also meeting the limitation of the claim 2. Regarding claim 3, Wadu teaches that single strand molecule, that is, rabbit IgG is a protein (pg. 1892, column 1, paragraph 2, lines 1-2).

Regarding claims 4 and 5, Wadu teaches that the rabbit IgG protein molecule is in standing up orientation (pg. 1894, column 1, paragraph 2, line10; See also Fig. 3C for schematics of possible orientation including stand up orientation), that is, uprightly disposed single strand molecule, and specifically binds to antimouse rabbit IgG protein molecule (Fig. 4 C & E; Fig. 5 for schematics of possible orientation including stand up orientation) thus teaching multiple strand molecule and a complex between two protein molecules, as defined in the instant specification (see instant specification, paragraphs 0065 and 0066) thus meeting the limitation of the said claims.

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Regarding claims 6 and 7, Wadu teaches a method that includes scanning 350x300 nanometer square area with (Fig. 3E, see the increase in height of the spots compared to Fig. 3D) and without lysozyme (Fig. 3 D) and analyzing the scanned pattern based on the height (Fig. 3F) and localizing individual protein molecules and their orientation from the topographic image (pg. 1894, column 2, paragraph 2, especially lines 10-21), thus teaching counting the number of molecules per unit area, thus giving molecular localization information.

Regarding claim 17, Wadu teaches a method that includes immobilization of proteins to a gold film (Fig. 1 see for schematic illustration of immobilization of proteins) for probing in solution with atomic force microscope that is scanning probe microscope.

Conclusion

9. No claim is allowed

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Narayan K. Bhat whose telephone number is (571)-272-5540. The examiner can normally be reached on 8.30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram R. Shukla can be reached on (571)-272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

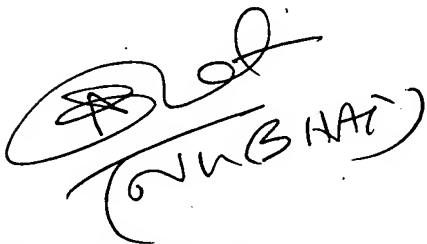
For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

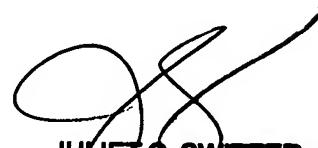
system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'N K BHAT', with a stylized flourish above it.

Narayan K. Bhat Ph. D.

Examiner

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A handwritten signature in black ink, appearing to read 'Juliet C. Switzer', with a large loop at the end.
JULIET C. SWITZER
PRIMARY EXAMINER